

AMENDMENTS TO THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of the claims in this application.

Listing of Claims:

Claims 1-26. Cancelled

27. (New) An apparatus, comprising:

a processor configured with a memory that stores program instructions, where execution of the program instructions provides a configurable protocol engine to configure and construct a communication protocol, said processor further configured to receive service primitives and configuration information, and to manage configurable protocol engine configuration on the basis of the configuration information, said processor further configured to control and schedule at least part of internal processing in the configurable protocol engine on the basis of the configurable protocol engine configuration, said processor further configured to interface with at least one of an upper protocol layer and a lower protocol layer on the basis of the configurable protocol engine configuration and to execute functions for processing data in accordance with the configurable protocol engine configuration,

where the configurable protocol engine configuration is constructed on the basis of at least one of service requirements, a required quality of service, hardware resources and network resources.

28. (New) The apparatus of claim 27, where a number of the functions is selected on the basis of the configurable protocol engine configuration from a plurality of functions, said plurality of functions comprising an equal or larger number of functions than the selected number of functions.

29. (New) The apparatus of claim 27, where the configuration information is received and processed during start-up of the configurable protocol engine or at run-time.

30. (New) The apparatus of claim 27, where said processor is further configured to interface with the at least one of the upper protocol layer and the lower protocol layer on the basis of received configuration information.

31. (New) The apparatus of claim 27, where at least one of said functions is received from an external entity.

32. (New) The apparatus of claim 27, where said processor is further configured to select a function on the basis of at least one of a service level provided by the function and at least one cost factor related to the function.

33. (New) The apparatus of claim 27, said processor further configured to schedule said received service primitives.

34. (New) The apparatus of claim 27, said processor further configured to perform scheduling by maintaining a plurality of queues for the service primitives, where the queues are serviced on the basis of queue priority and where the service primitives are placed into the queues on the basis of priority.

35. (New) The apparatus of claim 27, wherein the received configuration information explicitly defines the configurable protocol engine configuration.

36. (New) The apparatus of claim 27, wherein the received configuration information is a source for constructing the configurable protocol engine configuration.

37. (New) The apparatus of claim 27, where said configurable protocol engine is implemented in cooperation with hardware other than said processor.

38. (New) A method, comprising:

configuring a configurable protocol engine to construct a communication protocol, where configuring comprises,

receiving configuration information,

defining a configurable protocol engine configuration on the basis of the received configuration information, and

adapting the configurable protocol engine to the defined configurable protocol engine configuration such that at least one action is performed,

where the action is comprised of at least one of implementing an interface towards an external entity, implementing a queue for a service primitive, and determining a function to be used for processing data included in a service primitive, and

where the configurable protocol engine configuration is defined on the basis of at least one of service requirements, a required quality of service, hardware resources and network resources.

39. (New) The method of claim 38, further comprising, subsequent to configuring the configurable protocol engine, scheduling received service primitives on the basis of service primitive priority classification by placing a received service primitive or a derivative thereof into a queue with a corresponding priority classification, and by serving the queue according to the priority classification thereof.

40. (New) The method of claim 38, wherein the function is determined by selecting the function from a plurality of functions on the basis of one of the configurable protocol engine configuration, or by receiving the function or an indication thereof from an external entity.

41. (New) A memory that stores computer program instructions that when executed by a processor result in implementing at least part of a configurable protocol engine for constructing a protocol by performing operations that comprise:

defining and managing a configurable protocol engine configuration on the basis of available configuration information,

scheduling processing of received service primitives on the basis of the configurable protocol engine configuration, and

providing a plurality of functions to process data included in received service primitives in accordance with the configurable protocol engine configuration,

where the configurable protocol engine configuration is defined on the basis of at least one of service requirements, a required quality of service, hardware resources and network resources.

42. (New) The memory of claim 41, where execution of the computer program instructions when scheduling processing further comprises operations of maintaining a plurality of queues for the service primitives or derivatives thereof, and serving the primitives or derivatives thereof on

the basis of their priority, where the primitives or derivatives thereof are placed into the plurality of queues on the basis of their priority.

43. (New) An electronic device, comprising:

a processor configured with a memory that stores program instructions, where execution of the program instructions provides a configurable protocol engine to receive and process service primitives, said electronic device further comprising a transceiver to transfer data, said processor further configured to receive configuration information, to manage the configurable protocol engine configuration on the basis of the received configuration information, to schedule at least part of internal processing within the configurable protocol engine on the basis of the configurable protocol engine configuration, and to process received service primitives in accordance with the configurable protocol engine configuration, where the configurable protocol engine configuration is defined on the basis of at least one of service requirements, a required quality of service, hardware resources and network resources.

44. (New) The electronic device of claim 43, said processor further configured to interface with at least one of an upper protocol layer and a lower protocol layer on the basis of the configurable protocol engine configuration.

45. (New) The electronic device of claim 43, said processor further configured to select a number of functions from a plurality of functions in accordance with the configurable protocol engine configuration in order to implement a protocol.

46. (New) The electronic device of claim 43, said processor further configured to perform the scheduling by maintaining a plurality of queues

with different priorities for the service primitives or derivatives thereof, and to serve the primitives or derivatives thereof in the plurality of queues on the basis of their priority, where the primitives or derivatives thereof are placed into the plurality of queues on the basis of their priority.

47. (New) The electronic device of claim 46, said processor further configured to utilize separate queues for each type of primitive.

48. (New) The electronic device of claim 46, said processor further configured to place a primitive retrieved from a queue back into the queue if a function required by the primitive is already in use.

49. (New) The electronic device of claim 43, embodied in a wireless communication device or in a computer.